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A New Unit for Europe

Study Number 6 -Major Philip R. Harper U.S. Army Command and General Staff College Port Leavenworth, Kansas 66027

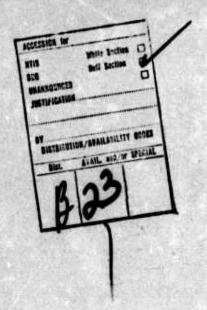
6 June 1975

Final Report - 6 June 1975



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Prepared in partial fulfillment of graduation requirements for:
U.S. Army Command and General Staff College, Fort Leavenworth, Kansas 66027



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REPORT DOCUMENTA	TION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
REPORT NUMBER	2. GOVT ACCESSION NO	. 3. RECIPIENT'S CATALOG NUMBER
TITLE (and Subtitle)		5. TYPE OF REPORT & PERIOD COVERED
A New Unit for Europe	9	Final Report, June 1975
and the same of th		6 PERFORMING ORG. REPORT NUMBER
AUTHOR(e)		8. CONTRACT OR GRANT NUMBER(*)
Study Nr 6		
PERFORMING ORGANIZATION NAME AND AD Student(s) at the U.S. Army (10. PROGRAM ELEMENT, PROJECT, TASK
Staff College during Academic		(2) 33 p.
U.S. Army Command and General		6 June 75 /
ATTN: ATSW-DD	1 Stall College	13. NUMBER OF PAGES
Fort Leavenworth, Kansas 660	027	28 pages
MONITORING AGENCY NAME & ADDRESSUL	different from Controlling Office)	15. SECURITY CLASS. (of this report)
10 Philip R./	Harpen	Unclassified
1	and the second second	15. DECLASSIFICATION/DOWNGRADING SCHEDULE
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The purpose of the study was to recommend a task force concept, based on an analysis of the factors of command and control, fire support, and weapons mix which would perform best for U.S. forces in NATO.

The study employs war gaming techniques to evaluate the relative merits of various combined arms force concepts as they might be used to defend against a motorised rifle battalion reinforced by one tank company and an antitank battery. Various battalion size units were created and deployed on the war game site. A platoon plus slice of each of these test battalions was then war gamed against a standard threat. The results were compared against the performance of the present U.S. system of task organisation.

The study concludes that the war game and the literature supports the requirement for at least three long-range ATGM systems per committed platoon with one backup to replace battle losses. The mix should include at least one Shillelagh system due to the effect of enemy artillery suppressive fires on "soft" ATGM systems. The best force for U.S. troops in NATO would be a standard mech battalion task force with a 13 tank (N6OA2) armored company cross attacked.

A NET UNIT FOR EUROPE

NATO MINI CTULY

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SECTION 1: GENERAL

furpabe:

The purpose of this study is to employ war gaming techniques to evaluate the relative merits of various combined arms force concepts as they might be employed to defend the Fulda Gap area of the Federal Republic of Gormany.

Objective:

To recommend a task force concept, based on an analysis of the factors of command and control, fire support and weapons mix, which would perform best in the defense of the Fulda Gap.

Rattle Area:

The task force concepts were war gamed on a 2 km by 5 km site northeast of Fulda. The exact coordinates are NF564312-549302-590270-573260 (Map 1). This site was one of several available in the Fulda Cap area for which current, dependable line-of-sight (intervisibility) data existed. This particular site was belocted based on the judgment of the military observers present that this site was the best example of task terrain of all sites studied.

Concept:

- a. Threat force composition was based on enemy doctrine as taught at United States Army Command and General Staff College.

 Assumptions were:
- (1) The threat was a notorized rifle battalion ruinfered by one tank company and an anti-tank battery (Figure 1).

- (2) The threat battalion attacked on 1.5 km front with two reinforced companies in 1st echelon. First echelon was 250m in depth. The second echelon was a reinforced motorized rifle company which followed 800m behind the first echelon.
- (3) Air, ADA, the amouth-bore 76mm gun, the RFG 7, and the SMATTER Missile were not played.
- (A) All T-62 tanks were assumed to carry only armor piercing fin stabilizing discarding sabot (APESDS) and high explosive anti-tank (HEAT) assumition.
- b. Various battalion size units were created and deployed on the test site. A plateon plus slice of each of these test battalions was then war gamed against a standard threat. The results were compared against the performance of the present U.S. system of task organization.

Task force one was the current U.S. organization (Figure 2).

Task force two (Figure 3) was a variation of a combined arms force concept developed and war gamed for the anti-armor elective. The conclusion of the anti-armor study group was that task force two was a better organization for battle on a European battlefield than current organizations. While this statement is true, it is unrealistic due to the heavy cost of creating this 26 task task force compared to the 17 task task force one.

Tank force three (Figure 4) moves 4 tanks or 2; percent of the tanks needed to create tank force one. It would take 48 fewer tanks to task organize a mechanized division. These excess tanks could be used to create sew tank units to build a corps reserve.

Defense Plans:

- a. Task force one defense plan:
 - (1) Two company tenns on line.

Ture "A"	Tune "B"
2 Inf Plt	3 Inf Plt
1 Tk Plt	1 Th ill

- (2) Reserve consisted of one company team(-) with one infantry plateon and one tank plateon.
- (3) This force had 16 TOW crews, 17 tanks and 18 Dragon trackers available for anti-armor defense.
- (4) Six TOW crews were given to TK A, eight TOW crews were given to TK P and two TOW crews were given to the reserve.
- (5) This force concept was war gamed using one half of TH A consisting of one infantry platoon, a light tank mention, four TOW crown and three Dragon trackers (Figure 5).
 - b. Tack force two defence plan:
 - (1) Three company teams on line.

Tona "A"	Toam "B"	Toam "C"				
2 Inf Plt 1 TK Flt	2 Inf Plt	2 Tk Plt 1 Inr Plt				

- (2) Pamerye is one company team consisting of two tank platoons and one infantry pintoon.
- (5) This force had 10 40% crews, 26 tanks (M60A1), and 22 Pragon trackers available as anti-tank weapons.
- (4) Four TOW crews were given to TM A and TM B. Two TOW crews were given to TM C. The reserve company had no TOWs.
- (5) This force concept was war gamed using one half of TK B consisting of one infantry plateon, a heavy tank section, two Tow crows and three Dragon trackers (Figure 6).
 - c. Task force three defense plan:
 - (1) Two company teams on line.

Toam "A"	Toam "B"
2 Inf Plt	3 Inf Plt
1 Tk Plt	1 Tk Plt

- (2) Reserve is one company team consisting of one infantry platoon and one tank platoon.
- (3) This force had 16 TOW crews, 13 tanks (M60A2) and 18 Pragon trackers available as anti-tank weapons.
- (4) Four TOW crews were given to TK A, eight
 TOW crows were given to TM B, and four TCW crows were given to
 the reserve.

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(5) This force concept was war gamed using one half of TM A consisting of one infantry platoen, a light tank section, two TOW crews and three Dragon trackers (Figure 7).

BECTION II: "AP GAME

Inputs and Parameters:

- a. Line-of-night (interviolability) data were derived from the TETAN Study. Important points from the dudy regarding the terrain used for the battle are:
- (1) Many engagement opportunities exist at very long range, i.e., greater than 3000m.
- (2) There appears to be sufficient exposure time (with respect to acquisition, response, tracking and missile flight times and threat vehicle speed) for anti-tank guided missile (ATGM) systems to successfully engage targets at long range (2500 to 3000m).
- or may not be representative of the cutire Fulda Gap area.
- (4) Intervisibility data are highly range dependent.
- (5) Specific information on the probability of detection (1d) with four man observation teams per ATGM crew can be found in the TETAN Study. 3.
- b. Probability of kill (Pk) given the probability of a hit (Ph) was available for all weapons systems at all ranges in both static and moving conditions (20kph) and various degrees of exposure. 4
- c. Nap 2 is a blow up of the chosen battle area.

 It shows the ten approach lanes through the plateon slice of the battlefield. The enemy is attacking to the southeast.

 The numbers and letters on the U.S. side of the battle area indicate weapons positions from which intervisibility data were

data bare will give the intervisibility data needed in order to fight a combat action. For example, a Town at position 1 could detect and engage a vehicle at 3000m on lane 10.

- d. Wenronn parameters.5
 - (1) All basic loads were played.
- (2) Acquimition, response, tracking and missile flight times were played corresponding to the appropriate engagement range.

Taction:

- n. The threat force:
- (1) Approach formation is shown in Figures 5, 6, and 7.
- (2) Tactic was a rapid approach with a 15 kph rate of march to attack.
- (3) Was assumed to be engaged with the front of threat vehicles fully exposed while moving at 15 kph.
- (4) Adopted the following rules of engagement based on several trial games to develop an experience factor.
- (a) PRDM's engage suspected ATGM sites at 2500m (maximum effective range) whenever possible.
- (b) T-62 tanks engage suspected targets at 1500m due to for Pk at Longer ranges.
- (c) PHPM's deploy at 1000m to support attack by fire.
 - b. The before force:
 - (1) TOW rissile teams wer, employed in pairs.

- (2) Michila over and four observers to increase Pd.
- ()) Adopted the following ruter of engagement based on several trial games to develop an experience factor.
- (a) 40% crows would ongage at 3000m (maximum offective range) whenever possible.
- (b) PROM's are classified as high-priority targets for engagement ASAP by ATGH crows. TOW and M60A2 crews make every effort to engage PRDH's between 3000m and 2500m thus allowing defense to fire one, nerhaps two TOW's per crow before PRDH's can come within SAGGER maximum effective range (2500m).
- (c) M60Al tanks ongage targets at 1500m. First priority target is any remaining BRDM's, second priority target is T-62. The object is to destroy at least one tank in each attacking company ASAP in order to break down enemy tank platoon integrity. This hindered the enemy's ability to mass his platoon fires on one target thereby reducing his Fk.
- (d) BMP's are last priority target for engagement.

received iii: Recontra

"emmand and Centrol:

The platoon level war game and a research of the literature identified come difficulties in command and control of ATGN systems. These problems occur in the handoff of AT targets acquired by the platoon leader to various ATGN crews. This problem can be identified in five separate areas: the ATGN crew, the location of the platoen leader, threat tactics, handoff methods and communication.

- firing and moving that they could not have responded to any target given to them by any external source, including the platoon leader, except by ignoring targets the ATGM crew had themselves acquired.
- b. Flatoon leader location was a contributing factor due to the width of the defencive position. The width makes it virtually impossible for any one individual to have the same fields of view as all ATCM crows. The complication is that the platoon leader would not know if an ATCM crcw had acquired a specific target.
- c. Threat tactic of a rapid approach to attack (15 kgh) demands the full attention of the ATGE crow to be directed into the battle area for early target acquisition.

 ATGE crows were too busy to pay much attention to an outside source providing more targets.

- propare detailed range cards showing numerous reference points in their sector of fire. The plateon leader would then handoff his acquired target via the reference point method using the appropriate range card.
- c. An analysis of communications reveals that each ATGM crew must have communications between mutually supporting crews and with a mobile plateon leader.

Fire Surport:

Field artillery for friendly units was not played since it would force the threat to "button-up" under any force concept considered. Pessearch reveals that enemy artillery has a significantly different effect between task force concepts one and two and a task force concept such as number three which includes at least two of the SHILLELAGH systems (MSSI's or M60A2's). 7

the P13 from 15 percent to 30 percent of the time when enemy artillery was played. Research reverls that the missile is not stored when enemy artillery is not played. When it is played, however, even random fire impacting in the general area is sufficient to cause the missiles to be stored, and observation of the threat force to be decreased. The result is that the enemy is engaged at closer ranges or Fower TCM's are fired.

b. In the defence, the SHILLMACH to really a long-range ATGE system with armor protection. Literature supports the contention that enemy artillery suppressive fire serves to stimulate SHILLMACH crows to faster action which increases the engagement rate. This is in direct opposition to the TOM crow response in which the engagement rate decreases. Additionally, under enemy artillery suppressive fire, the SHILLMACH system inflicts more kills per player than any other ATCH system. This reverses earlier findings which showed that TOM crows inflict the most kills per player but without playing enemy artillery.

Hight Operations:

Research was conducted to determine the effectiveness of ATGM systems under night conditions with artificial illumination but without night vision devices.

a. Engagement ranges decreased noticeably during night operations.

b. . Total kills

- (1) Defense inflicts about 1/2 to 2/3 of the kills shown in daytime operations under a rapid approach technique.
- (2) Threat cannot piapoint ATGM systems in spite of flash signatures which caused an increase in their rate of tank fires but a decrease in threat inflicted kills. Quantitative data to support this were not available in the literature.

Weapons Mix:

- player than MGOAl's and Dragons due to, long-range capability. It is critical that the TOW's engage the BEGE's ASAP to destroy them before the BRDM gots within SAGGUR range. This strips the SAGGUR capability from the threat force and allows the TOW and shorter range AT defense systems to destroy the T-62 tanks without a SAGGUR threat. All surviving TOW's had expended 75 percent of their basic load when the battle ended. The MGOAP was the next most effective weapon systems.
- (1) Task force one (four TOW's). Three of the six T-62 tanks were destroyed by TOW's. All three of the BRDM's were destroyed by TOW's; two of the four TOW's were destroyed.
- (2) Task force two (two TOW's). Two of the rix T-62 tanks were destroyed by TOW's; two of the three BRDN's were destroyed by TOW's; one BRDN survived. Both TOW crews were destroyed.
- Three of the six T-62 tanks were destroyed by Tow's and three T-62 tanks were destroyed by Tow's and three destroyed by Tow's and one BRPH was destroyed by the M60A2.

 Two BRP's were destroyed; one by Tow and the other by N60A2.

 All Tow's survived and one M60A2 was destroyed. The Tow's survived because the threat tried to hit the tanks first since the M60A2 was a more easily detected target.

(4) Sureary (TOT Force)

Total Kills For	Inflicted	Suntained
TF 1	6 (3 T-62's, 3 BRDM's)	2
7'F 2	4 (2 T-62'n, 2 BRDE'n)	2
TF 3	6 (3 T-621n, 2 BRDK'n, 1 BMF)	. 0

(9) Four long-range ATGM systems must be available to each committed infantry platons to increase the shility of that unit to survive in the Fulda Cap. Three long-range ATGM systems facilitated destruction of all three PRDM's at this particular battle site. Therefore, one extra weapon is needed on site so that the platoon can best off the second scholar attack as well as the first. M60Al's low successful engagement probability, except at relatively short ranges (1900m or less), rendered this system virtually useless until the TCM's had destroyed the enemy EREM's and the T-62 tanks had closed to within 1500 meters. Platoon leader must exercise strict control over the initial fires of his M60Al force.

(4) Summary (Tank Force)

Total Kills For	Inflicted	Sustained
TF 1 (M60A1)	ろ(T-62's) ろ(T-62's)	1 .
TF 4 (B60A2)	5 (3 T-621:, 1 BRDH, 1 BBP)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

(7) A light tank pection is sufficient as long as enough long-range ATGM systems are present in defensive positions. The MSOAR should replace the MSOAR in the forward deployed mechanized divisions.

(?) Summary (Pragon)

Total Kills For	Inflicted	Suntained
TF A TF 2 TF 3	0 · 1 (T-62)	0 0 0

Dragon weapons have a very short range and medium ability to destroy tanks (Pk).

- Pragons fired in this battle. One of the two expended its entire basic load. One T-62 was destroyed by a Dragon. No Dragons were destroyed by the enemy force.
- b. Task forces one and three (three Dragons).

 The enemy had been defeated before cleaning to 750m which was initial engagement range established for the Dragon. Therefore, the Pragon was never fired in their bettles.

complete Iv: RATTLE PROUMS

Tank Force One:

- a. Threat force was stopped well short of 750m of the defensive position. All six T-62 tanks in the threat first echelon were destroyed, all three PRPN's were destroyed, PRP's in the first echelon had expended all SAGGERS; threat second echelon was intect except that two BNN's had fired their SAGGERS.
- b. The defense force sustained 50 percent destruction of its TOM crews, and 50 percent of its M60Al's. All surviving TOM crews had expended 75 percent of their basic load. Four long-range ATCM systems improved survivability of the tank force by destroying all BRDM's early and engaging threat T-62 tanks before they closed to AFFSDS range.

Task Force Two:

- a. Threat force was stopped within 500m of defensive position. All six T-62 tanks in threat first echelon were destroyed, two of three BRDM's were destroyed, BMP's in first echelon had expended all SAGGERS; threat second echelon was intact.
- b. The defense force sustained 100 percent destruction of TOW crows by the time the threat had closed to 1250m, 100 percent destruction of hCOAI's by the time the threat had closed to 500m. Dragons were required to destroy final T-62 in first echelon thus stopping threat attack. One Bragon crow had expended its basic load. The failure to destroy all three BRDM's early was critical and almost caused the defense to collapse. Threat expended all SAGGERS in the first and second echelous.

Tack Force Throc:

a. Threat force was stopped well beyond 750m of the defensive position. All of the first echelon tanks were destroyed (6 T-62's) as well as all three BRDM's. Two BRP's were also destroyed before the threat turned back.

b. The defense force lost one of its two tanks (M60A2's). The TOW's had expended 75 percent of their basic load. The surviving M60A2 had expended over 90 percent of its basic load and the M60A2 that was destroyed had expended over 75 percent of its basic load.

INCOME NO METER CONTINUES TO PROPERTY OF THE PARTY OF THE

Command and control problems are about equal for each of the task forces looked at.

Energy artillery does suppress "noft" ATSE crows which decreases the number of hills sustained by the threat force and allowing the threat force to get closer to the defensive position. This invers "harder" systems and thus task force three because it provides a harder ATSE weapon.

Might operations played with artificial illumination but without night winden devices shows a noticeable decrease in ATGM system engagement ranges. Threat force will sustain only 1/2 to 2/3 of the kills shown herein. It will also inflict fewer casualties. Night operations favor the force with more close-in AT systems, in this care tack force two.

Weapons mix favors tank force three. The war game and the literature supports the requirement for at least three long-range ATGE systems per committed plateon with one backup to replace battle losses. The mix should include at least one SHILLELACH system due to the effect of enemy artillery suppressive fires on "soft" ATGE systems.

- units, each battalion AT platoon should have 12 TOW grows; .

 infantry companies should have at least two organic TOW grows.
- b. One 13 tank EGOA2 company is required per committed battalian. The number of MGOA2 tanks supporting each infantry

pinteen is at least two. This is board on the arrangition that sufficient (2 or more) long-range ATGS systems are supporting each infantry plateen.

c. BROW's are the threat force's most effective
weapon and must be attacked and destrayed early in the battle.
This makes the difference between success and near-failure.
The requirement to destroy BRDM's early favors the Gree with
the largest number of long-range ATGH weapons, task force three.

Cvern11 Recommendations:

The critical factor in the battle in the ability to engage and destroy all three BRDE's early and at extended range (2500m to 3000m). This requires at least three long-range ATGH systems per committed platoon. Therefore, this analysis must recommend task force three.

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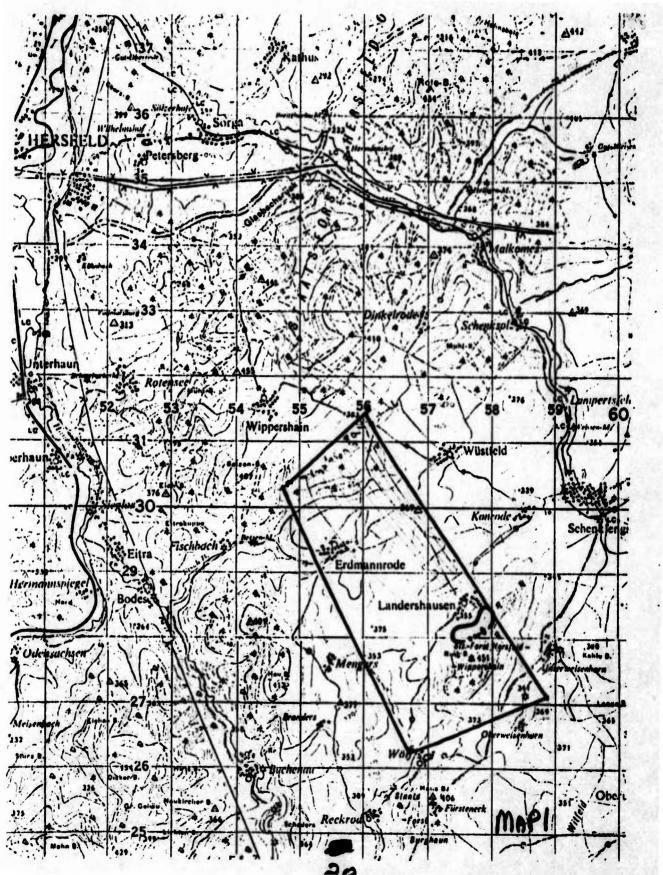
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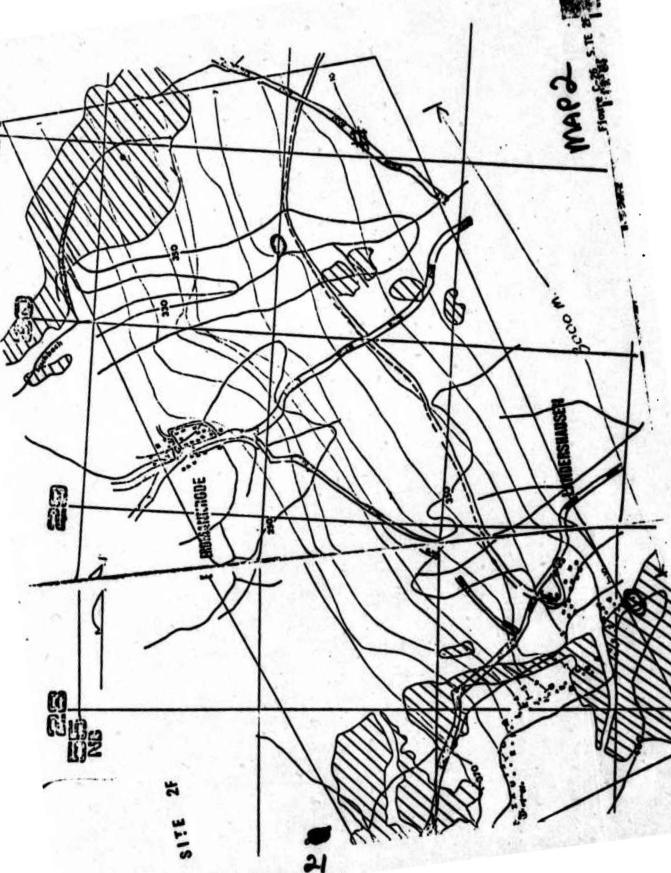
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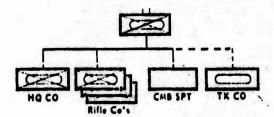
 Soviet ATGM's, Capabilities and Countermeasures, February

 1975. (C).





THREAT MOTORIZED RIFLE BATTALION (W-BMP) REINFORCED W-1 MED TANK CO

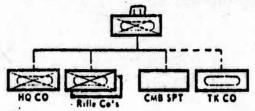


ANTIARMOR WPNS

8MP
SAGGERS 32*
\$PG_9
RPG-7
TANKS 10
INDIRECT FIRE WEAPONS
120mm MORTAR 6
INFÄNTRY SMALL ARMS
Rifles AKM 7,62mm
620m3

F161

US MECHANIZED INFANTRY BATTALION TASK FORCE W 1 TANK CO CROSS ATTACHED

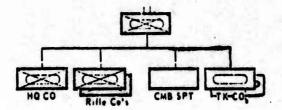


ANTIARMOR WPNS

The state of the s
24 APC (In two Rifle Co's)
16 TOW
22 (In Rifle & Scout Pla's) = DRAGON
58" LAW Carry Garden
17 MIGNI _TANKS COOO
INDIRECT FIRE WEAPONS
6
INFANTRY SMALL ARMS
547
TWO PER RIFLE SQUAD

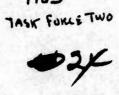
FIGAL TASK FORCE ONE

US MECHANIZED INFANTRY BATTALION

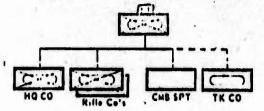


ANTIARMOR WPNS

F.63



US MECHANIZED INFANTRY BATTALION TASK FORCE W.1 TANK CO CROSS ATTACHED



ANTIARMOR WPNS

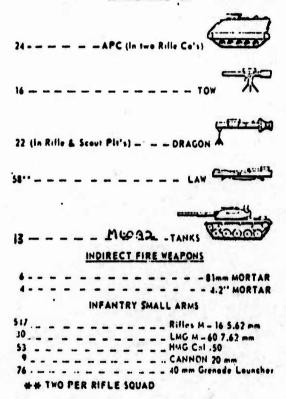


FIG :4
TASK FOLLS THERE



腿

